

September 30, 2019

5860-4900-59240-09

Glen Johnson, P.Geol.
Venturion Oil Limited
1600, 500 – 4th Ave S.W.
CALGARY, AB T2P 3V6

Dear Mr. Johnson:

**RE: PRESSURE MAINTENANCE WATERFLOOD SPECIAL PROJECT AMENDMENT #3
OTHER THAN NORMAL SPACING ORDER AMENDMENT #3
MICA FIELD – DOIG “B” POOL**

The Commission has reviewed the application dated August 24, 2019 to include well Venturion Mica A10-36-81-14 (WA 39253) as an injector in the Mica field Doig 'B' pool.

The injector is needed to offset pressure depletion and to improve oil recovery. The simulation model suggest that adding an injector would result in an additional six percent of recoverable oil; possibly increasing the recovery factor to 35 percent. As for injector Venturion Mica 9-35-81-14, the new injector will receive mostly Bluesky source water with minimum additional make-up or produced water added. The installation of continuous pressure monitoring, and control equipment to ensure strict adherence to limits allows for an adjustment of the MWHIP to 17,680 kPa.

The following Orders are attached;

- 1) Order 17-09-001 Amendment #3 designating Pressure Maintenance Waterflood within the Mica field – Doig 'B' pool, as a Special Project under section 75 of the *Oil and Gas Activities Act*, and
- 2) Order 17-09-001 Amendment #3 - OTN approving Other Than Normal Spacing under section 65.1 of the *Petroleum and Natural Gas Act* for the subject area and formation.

Venturion as the operator is to inform the Commission when the injection volume reaches a mixing ratio of 75% Bluesky water to 25% produced water. At that time, the specific gravity of the injected water needs to be determined and used in the review of the MWHIP. After 90 operating days of the pressure monitoring and control equipment, Venturion will be required to submit the daily pressure and rate data to verify that the MWHIP was not exceeded.

Please note that, as per section 75 of the *Drilling and Production Regulation*, a record of the volume of water injected must be included on a Monthly Injection statement to the Commission via Petrinex not later than the 20th day of the month following the reported month.

Should you have any questions, please contact Petra Kriescher-Trudgeon at (250) 419-4415 or the undersigned at (250) 419-4430.

Sincerely,



Ron Stefik, Eng.L.
Supervisor, Reservoir Engineering
Oil and Gas Commission

Attachments

IN THE MATTER of an application from Venturion Oil Limited to the Commission dated September 24, 2019 for the production of oil using pressure maintenance (water injection).

ORDER 17-09-001 Amendment #3

1. Under Section 65.1(2) of the *Petroleum and Natural Gas Act*, Other Than Normal Spacing is approved within the Mica field – Doig “B” pool within the following area;

DLS Twp 81 Rge 13 W6M SW/4 Section 31

 Twp 81 Rge 14 W6M E/2 Section 35, and 36

 Twp 82 Rge 14 W6M SW/4 Section 1

Under section 75(2) of the *Oil and Gas Activities Act*, I specify the following:

- a) The project unadjusted daily oil allowable (UDO) is 202.8 m³/d.
- b) All associated produced gas must be conserved.
- c) Water may be injected into the injection wells Venturion Mica 14-36-81-14 (WA 28390), interval 1694.0 – 1698.0 mKB and Venturion Mica A10-36-081-14 (WA39253) , interval 1761 – 1762.5 mKB MD;
 - i) Inject only through tubing with a packer set as near as is practical above the injection interval.
 - ii) Not exceed an injection pressure, measured at the wellhead of 17,810 kPa for well Venturion Mica 14-36-81-14 (WA 28390) and of 17,680 kPa for well Venturion Mica A10-36-081-14 (WA 39253), or the pressure required to fracture the formation, whichever is lesser.
 - iii) This MWHIP is based on Bluesky formation water. When the ratio of Bluesky to produced water reaches 75% to 25% the MWHIP must be reviewed based on the new specific gravity.
 - iv) After 90 days of operation, submit to the Commission three months of daily injection pressure and rate data in graphical and tabulated form.
- d) Not exceed an average pool pressure of 15,930 kPaa measured at 1052.0 meters subsea.
- e) Cease injection for the well listed in (c) and notify the Commission immediately if hydraulic isolation is lost in the wellbore or formation
- f) Submit the annual packer isolation test report for the well listed in (c) to the Commission within 30 days of the completion of the test.
- g) Include the injection hours and the maximum injection pressure value for the well listed in (c) via Petrinex.
- h) Injection must cease upon termination of production from the pool.
- i) The permit holder must submit a Progress Report to the Commission for each 12 month period the project is in operation. The Progress Report must be filed by March 31st the following year and must contain the information specified in Pressure Maintenance Progress Report Requirements.

Advisory Guidance for Order 17-09-001 Amendment #3

- I. A production packer must be set above the injection interval and the space between the tubing and casing filled with corrosion and frost inhibiting fluids, as per section 16(2) of the Drilling and Production Regulation.
- II. Annual packer isolation tests are required to be submitted, as per section 16(3) of the Drilling and Production Regulation.
- III. Injected fluids must be metered and the injection pressure measured at the wellhead, as per section 74 of the Drilling and Production Regulation.
- IV. A monthly injection statement must be submitted to the Commission via Petrinex not later than the 20th day of the month following the reported month, as per section 75 of the Drilling and Production Regulation.
- V. Seismic events must be reported and disposal operations suspended as per section 21.1 of the Drilling and Production Regulation.



Ron Stefik, Eng.L.
Supervisor, Reservoir Engineering
Oil and Gas Commission

DATED AT the City of Victoria, in the Province of British Columbia, this 30th day of September 2019.

IN THE MATTER of an application from Venturion Oil Limited to the Oil and Gas Commission dated September 24, 2019 for Other Than Normal Spacing.

ORDER 17-09-001 Amendment #3 - OTN

- 1 Under Section 65.1(2) of the *Petroleum and Natural Gas Act*, Other Than Normal Spacing is approved within the Mica field – Doig “B” pool within the following area;

DLS Twp 81 Rge 13 W6M SW/4 Section 31
 Twp 81 Rge 14 W6M E/2 Section 35, and 36
 Twp 82 Rge 14 W6M SW/4 Section 1

- 2 Under section 65.1(3) of the *Petroleum and Natural Gas Act*, I specify the following:

- a) the target area for an oil well completed within the project area is not nearer than 100 m to the sides of the Other Than Normal Spacing area,
- b) an oil well completed outside the target area specified in paragraph (a) may be subject to an off-target production penalty,
- c) oil wells drilled within the specified project area are not subject to spacing requirements.



Ron Stefik, Eng.L.
Supervisor, Reservoir Engineering
Oil and Gas Commission

DATED AT the City of Victoria, in the Province of British Columbia, this 30th day of September 2019.